

REMARKS

Claims 1-7 are pending in this application. The Abstract is replaced with a new Abstract. The Specification is amended to correct typographical errors. Claims 1 and 3-5 are amended to clarify embodiments of the present invention. Claim 7 is added. The amendments do not add new matter, and entry at this time is proper.

Favorable reconsideration and allowance of the present patent application are respectfully requested. The amendments, in conjunction with the following remarks, are believed to place the application in immediate condition for allowance.

Office Action

The Abstract stands objected to for allegedly not being in proper form. Claims 1-6 stand rejected under 35 U.S.C. § 103(a) as allegedly rendered obvious by U.S. Patent No. 5,828,406 (Parulski et al.) in view of U.S. Patent No. 4,541,010 (Alston). Applicants respectfully traverse the objection and the rejection in view of the foregoing amendments and the following remarks.

Applicants acknowledge with appreciation that the Examiner has considered the Information Disclosure Statement filed on November 2, 1999. Applicants also note that the claim for foreign priority under 35 U.S.C. § 119 is acknowledged. Applicants also note that the drawings filed on November 3, 1999, are acceptable.

Objection to Abstract

The Abstract is objected to as allegedly being improper. The objection is respectfully traversed. Applicants submit a new Abstract that is in proper form. Thus, the objection is rendered moot. Applicants respectfully request that the Examiner withdraw the objection to the Abstract.

The Claims Distinguish Over the Applied Art

The Office Action rejects claims 1-6 as allegedly rendered obvious by Parulski in view of Alston. The rejection is respectfully traversed.

To establish obviousness, the Office Action must meet three basic criteria. First, there must be some suggestion or motivation, either in the references themselves or in knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the applied art references must teach or suggest all the claimed limitations. MPEP § 2143. Applicants respectfully submit that the Office Action fails to establish obviousness with respect to the claims.

Parulski relates to an electronic camera having a processor for mapping image pixel signals into color display pixels. Parulski describes an image sensor 20, timing and control section 27, sensor drivers 30, processor section 35 and user control section 12.

Parulski describes a color filter to which the Bayer pattern is applied. The image sensor 20 has photosites 66, vertical registers 68, horizontal register 70 and FDG 72.

Timing and control section 27 operates in a first still mode and a second motion mode. All rows of image pixel charge corresponding to each line are read out through horizontal register 70 during a single scan in the first mode. In the second mode, some of the rows of image pixel charge corresponding to some lines are eliminated through fast dump structure 72 prior to readout. The Office Action concedes that Parulski does not disclose or suggest the color filters assigned to the color G being arranged in stripes, as recited in claim 1. Parulski, however, also does not disclose or suggest a mode selecting section generating a different phase of the horizontal drive signal selected from a plurality of signal levels in response to a horizontal timing signal and a control signal.

Alston relates to an electronic imaging camera. Alston describes an electronic camera 10 having a color filter with the three primary colors arranged in their own stripes. Electronic camera 10 operates in the preview mode, still mode and review mode. Image sensor array 14 discards the pixels of odd-numbered G rows on every other line to transfer the remaining pixels through shift register 22 to image storage array 16 and the low resolution serial

shift register 30 to develop them from preamplifier 32, thereby obtaining a low-resolution image.

Alston describes that CCD array 12 is of the two-phase, frame transfer type and implemented as a three- or four-phase device. As for the clock signals for controlling the transfer of image data between the shift register and image sensor array 14 or image storage array 16, Alston merely refers to the clock signals being supplied from the clock 52. Alston does not disclose or suggest a mode selecting section generating a different phase of the horizontal drive signal selected from a plurality of signal levels in response to a horizontal timing signal and a control signal.

In contrast, the claimed invention recites the mode selecting section generating a different phase of the horizontal drive signal selected from a plurality of signal levels in response to a horizontal timing signal fed from the drive signal generating section and a control signal fed from the controller. According to one exemplary disclosed embodiment, horizontal drive signals are selectively used so as to double the speed of the horizontal driver, specifically in the photometry control mode, against the all pixel read mode. The horizontal drive thus disclosed by the claimed invention is not disclosed nor suggested by a combination of Parulski with Alston (assuming the references can be combined which Applicants do not admit).

The applied art does not disclose or suggest using different drive signals of the different modes. Parulski does not disclose or suggest generating a different phase of the horizontal drive signal selected from a plurality of signal levels in response to a horizontal timing signal and a control signal in eliminating lines through fast dump structure 72. Alston does not disclose or suggest these features as well in using clock signals to control the transfer of image data. Therefore for at least these reasons, the applied art does not disclose or suggest all the claimed limitations.

In summary, in accordance with the Applicants' invention, a mode selection causes the phases to be changed that are established by the levels of the horizontal drive signals to be supplied to the electrodes, thereby effecting the high-speed readout from the horizontal transfer register. This feature allows a single horizontal transfer register to be commonly used for reading out signal charges both in the ordinary read mode (four-phase drive) and the high-speed read mode (two-phase drive). The Applicants' invention, explicitly recited in the amended claims submitted above, is therefore not rendered obvious over the cited references, alone or in combination. Therefore, Applicants respectfully request the Examiner withdraw the obviousness rejection.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact William F. Nixon (Reg. No. 44,262) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

 #40,479

By Michael K. Mutter, #29,680

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000


MKM/WFN/kpc

Attachment: New Abstract